

UTC Project Information	
Project Title	MPC-578 – Integrated Strategic and Operational Planning for a Fast-Charging Battery Electric Bus System
University	Utah State University
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Start and End Dates	October 18, 2018 to July 31, 2022
Brief Description of Research Project	<p>As an integral part of a multimodal transportation ecosystem, the public bus system provides an economical and sustainable travel mode that plays a key role in reducing traffic congestion and exhaust emissions. Conventional bus fleets, however, are mainly powered by diesel engines characterized by low energy efficiency, exhaust emissions, and oil dependence. Compared to diesel buses, BEBs have several advantages, including higher energy efficiency, zero tailpipe emissions, improved reliability, a lower maintenance burden, and the capability for using renewable energy sources, such as wind, solar, and water energies. Moreover, BEBs are easier to deploy and more flexible in their operation than trolley buses.</p> <p>Although BEBs have many advantages and have been adopted by a number of transit agencies, due to limitations in battery technology, they are disadvantaged by cumbersome and costly on-board batteries. Moreover, it takes very long time to recharge BEBs using either standard or slow-charging methods. The emerging fast-charging technology promises the potential to offset these drawbacks. With fast-charging technology, a BEB with a modest battery capacity can utilize the dwelling times between trips to quickly recharge its battery and maintain continuous operation. Fast-charging technology has been adopted by many BEB demonstration projects, and promising results have been report.</p> <p>In this project, we simultaneously consider and optimize the battery and charger configurations of a fast-charging BEB system, as well as</p>

	its recharging scheduling during operation. We also explicitly consider the demand charges of high-power recharging activities of BEBs.
Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	
Impacts/Benefits of Implementation (actual, not anticipated)	
Web Links <ul style="list-style-type: none">• Reports• Project Website	